CLAIMS

1. A method for treatment of an apoptosis-related disease in a subject comprising administering to said subject a therapeutically effective amount of an inhibitor of the MKLP1 polypeptide, in a dosage sufficient to inhibit MKLP1 so as to thereby treat the subject.

2. A method according to claim 1 wherein the inhibitor is administered in conjunction with a chemotherapeutic agent.

3. A method according to claim 1 wherein the inhibitor is an antibody.

4. A method according to claim 1 wherein the inhibitor is an AS fragment comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:3.

5. A method according to claim 1 wherein the inhibitor is an siRNA comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:4.

6. A method according to claim 1 wherein the apoptosis-related disease is a cancer.

7. A method for potentiating a chemotherapeutic treatment of an apoptosis-related disease in a subject comprising administering to said subject a therapeutically effective amount of an inhibitor of the human MKLP1 polypeptide in conjunction with a chemotherapeutic agent.

8. A method according to claim 7 wherein the inhibitor is an antibody.

9. A method according to claim 7 wherein the inhibitor is an AS fragment comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:3.

10. A method according to claim 7 wherein the inhibitor is an siRNA comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:4.

11. A method according to claim 7 wherein the apoptosis-related disease is a cancer.

12. An antisense oligonucleotide capable of inhibiting the expression of the MKLP1 polypeptide, having the sequence set forth in SEQ ID NO:3.

13. An siRNA capable of inhibiting the expression of the MKLP1 polypeptide, having the sequence set forth in SEQ ID NO:4.

14. An expression vector comprising a nucleic acid molecule encoding the antisense oligonucleotide of claim 12 or the siRNA of claim 13.

15. A process for determining the susceptibility of a subject to a chemotherapeutic treatment of an apoptosis-related disease comprising:

(a) providing the average, normal level of the MKLP1 polypeptide in the cells of healthy individuals;

(b) determining the level of the MKLP1 polypeptide in said subject;

(c) comparing the levels obtained in (a) and (b) above, a low level of MKLP1 polypeptide in said subject as compared to the level in healthy subjects indicating a susceptibility of said subject to a chemotherapeutic treatment of said apoptosis-related disease.

16. A process for determining the susceptibility of a subject to a chemotherapeutic treatment of an apoptosis-related disease comprising:

(a) providing the average, normal level of mRNA encoding the MKLP1 polypeptide in the cells of healthy subjects;

(b) determining the level of mRNA encoding the MKLP1 polypeptide in said subject;

(c) comparing the levels obtained in (a) and (b) above, a low level of mRNA encoding MKLP1 in said subject as compared to the level in healthy subjects indicating a susceptibility of said subject to a chemotherapeutic treatment of said apoptosis-related disease.

17. A process for determining the efficacy of a chemotherapeutic treatment administered to a subject comprising:

(a) determining the level of the MKLP1 polypeptide in the subject prior to a treatment;

(b) determining the level of the MKLP1 polypeptide in the subject after the treatment;

(c) comparing the levels obtained in (a) and (b) above, a high level of MKLP1 polypeptide prior to the treatment as compared to the level after the treatment indicating efficacy of the treatment.

18. A process for determining the efficacy of a chemotherapeutic treatment administered to a subject comprising:

(a) determining the level of the MKLP1 mRNA in the subject prior to a treatment;

(b) determining the level of the MKLP1 mRNA in the subject after the treatment;

(c) comparing the levels obtained in (a) and (b) above, a high level of MKLP1 mRNA prior to the treatment as compared to the level after the treatment indicating efficacy of the treatment.

19. A process of diagnosing a cancer in a subject comprising:

(a) providing the average, normal level of the MKLP1 polypeptide in the cells of healthy subjects;

(b) determining the level of the polypeptide in said subject;

(c) comparing the levels obtained in (a) and (b) above, wherein a high level of the MKLP1 polypeptide in said subject as compared to the level in healthy subjects is indicative of a cancer.

20. A process of diagnosing a cancer in a subject comprising:

(a) providing the average, normal level of a polynucleotide encoding the MKLP1 polypeptide in the cells of healthy subjects;

(b) determining the level of the polynucleotide in said subject;

(c) comparing the levels obtained in (a) and (b) above, wherein a high level of the polynucleotide in said subject as compared to the level in healthy subjects is indicative of a cancer.

21. A process for obtaining a compound which modulates apoptosis in a cell comprising:

(a) providing cells which express the human MKLP1 polypeptide;

(b) contacting said cells with said compound; and

(c) determining the ability of said compound to modulate apoptosis in the cells.

22. A process according to claim 21 comprising:

(a) providing test cells and control cells which express the human MKLP1 polypeptide at a level at which approximately 50% of the cells undergo apoptosis in the presence of an apoptosis-stimulating agent;

(b) contacting said test cells with said compound;

(c) treating said cells in conjunction with step (b) with an amount of apoptosis-stimulating agent capable of causing apoptosis in the control cell; and

(d) determining the ability of said compound to modulate apoptosis in the test cell.

23. A process for obtaining a compound which promotes apoptosis in a cell comprising:

(a) providing a test cell which expresses the human MKLP1 polypeptide and a control cell which does not express the human MKLP1 polypeptide;

(b) contacting said cells with said compound;

(c) treating said cells in conjunction with step (b) with an amount of apoptosis-stimulating agent capable of causing apoptosis in the control cell but not in the test cell in the absence of said compound; and

(d) determining the ability of said compound to promote apoptosis in the test cell.

24. A process for obtaining a compound which modulates apoptosis through the human MKLP1 polypeptide comprising:

(a) measuring the activity of the human MKLP1 polypeptide, or a fragment thereof having viability activity,

(b) contacting said polypeptide or fragment with said compound; and

(c) determining whether the activity of said polypeptide or fragment is modulated by said compound.

25. A process for obtaining a compound which modulates apoptosis through the human MKLP1 polypeptide comprising:

(a) measuring the binding of the human MKLP1 polypeptide, or a fragment thereof having viability activity, to a species to

which the human MKLP1 polypeptide interacts specifically *in vivo* to produce an anti-apoptotic effect;

(b) contacting said polypeptide or fragment with said compound; and

determining whether the activity of said polypeptide or fragment is affected by said compound.